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AUTHOR Quay, Suzanne
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ABSTRACT

This study investigated whether language context affects language choice in a Spanish-English bilingual infant from age 1;3 to 1;10. Most studies of child bilingualism assume that communicative competence occurs at a stage in language development after the onset of syntactic constructions, but this paper hypothesizes that once the child begins to acquire equivalents (Spanish-English lexical pairs like casa-house) at about age 1;3, she is able to use contextual clues to choose the appropriate equivalent as determined by the language spoken by her adult interlocutors. Equivalents are analyzed according to their distribution in the speech of the child when interacting with different adult interlocutors. Results indicate that communicative competence is acquired even earlier than previously suggested. The study's bilingual subject used her developing languages in contextually sensitive ways before age 1;10. This study has provided a means of investigating communicative competence from the first words and shows that communicative competence is acquired very early as a consequence of language socialization. (Contains 6 references.) (Author/AA)

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EXPLAINING LANGUAGE CHOICE IN EARLY INFANT BILINGUALISM

Suzanne Quay
University of Cambridge

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Abstract

The purpose of this paper is to investigate whether language context affects language choice in a Spanish-English bilingual infant from age 1;3 to 1;10. Most studies of child bilingualism assume that communicative competence occurs at a stage in language development after the onset of syntactic constructions, but my hypothesis is that once the child begins to acquire equivalents (Spanish-English lexical pairs like *casa*-house) at about age 1;3, she is able to use contextual clues to choose the appropriate equivalent as determined by the language spoken by her adult interlocutors. Equivalents are analyzed according to their distribution in the speech of the child when interacting with different adult interlocutors. The appropriate use (significantly more often than not) of lexical items when it has already been established that the child knows the equivalent terms would be consistent with my hypothesis while random usage of lexical pairs regardless of the language used by adult interlocutors would be evidence against it. Support for my hypothesis would emphasize the child's ability to differentiate input in early language acquisition and imply that the child can develop the sociolinguistic skill of language choice even before the onset of syntax.

INTRODUCTION

This paper reports on the simultaneous acquisition of English and Spanish by a child from age 1;3 to age 1;10. A bilingual study such as this one contributes to language acquisition theory in general by teaching us about the early development of communicative competence. Hymes (1972) defines communicative competence as "the knowledge of sentences, not only as grammatical, but also as appropriate" and goes on to say that a normal child "acquires competence as to when to speak, when not, and as to what to talk about with whom, when, where, in what manner" (Hymes 1972: 277). Romaine (1984) studies the acquisition of communicative competence in school-age children and writes that "by the time the child comes to school, he has a richly differentiated linguistic system" (Romaine 1984: 7). Exactly how and when during acquisition children learn to use their language appropriately is not stated. Lanza (1990), in her case study of a Norwegian-English bilingual child, claims that sensitivity to the contextual demands of an interaction is displayed at the early age of 2;2 (Lanza 1990: 394). However, Lanza begins her study of the development of communicative competence no earlier than age two and only after the onset of syntax. But it is possible in a bilingual study (as opposed to a monolingual one) to investigate language choice, which is an aspect of communicative competence, even earlier than age two because there is clear indication of different codes present from the beginning of speech (as in the availability of two lexicons, one from each language).

In this study, a bilingual infant's linguistic interactions are examined in two different contexts - a Spanish one and an English one. The aim is to determine whether there is differential distribution of single-word utterances in the two languages as a function of language context. Context is defined in this study according to the language used by an interlocutor in conversation with the child. In other words, the child's choice-patterns will be described according to strictly English-language or Spanish-language interactions set up by the adults. In bilingual acquisition, the child is learning two sets of vocabulary at once. This study will look only at that part of the child's

vocabulary where she has pairs of translation equivalents, which would indicate that she has a choice in her language use. The fact that my study has data from the two language contexts is a major advantage over those studies (such as Volterra and Taeschner, 1978 and Vihman, 1985) that have looked at the use of equivalents in only one language context.

METHOD

Manuela, my bilingual subject, was an only child during the period of study. She lived in Brighton, England and was exposed to Spanish in the home from her parents when no monolingual English speakers were present, and to English from her grandmother and in the crèche where she went daily. Her father is a native Cuban Spanish speaker and her mother, a native British English speaker who had acquired Spanish in adulthood. Manuela's mother is a linguist and an academic at a British university, and her father is a civil engineer. It was roughly estimated, based on a questionnaire filled in by Manuela's mother, that from birth until age 1;0, Manuela heard, on the average, English, 71% of the time, and Spanish, 29% of the time and that from age 1;0 until 1;10, English was heard 48% of the time, and Spanish, 52% of the time. Manuela produced mainly single-word utterances throughout the period of this study. Two-word utterances do appear at age 1;7 but make up a very small proportion of Manuela's total utterances and are excluded from analysis.

The data reported in this study come from weekly video recordings - one session with a Spanish-speaking adult interlocutor and another with an English-speaking one - and from daily diary records kept by Manuela's mother. The video camera (after the first few recordings) was left on a stationary tripod mainly in the living room of the child's home when the recordings were in progress. In this way, the tripod and camera became a part of the fixtures in the child's natural environment. In the video sessions, toys and books are used to stimulate conversation, so that the main activities recorded are of Manuela playing with her toys or looking at her books with

her interlocutors. Since the same toys and books were used in all sessions, a type of controlled situation was created inadvertently whereby it was possible to see by keeping records whether the child truly possessed vocabulary in both languages to name or talk about the same toys and the same books (in other words, whether she had translation equivalents).

Table 1 lists twenty recordings in an English context and Table 2 lists twenty in a Spanish context. The recordings range in duration from 5 minutes to 70 minutes depending on Manuela's co-operation and both sets of recordings are roughly spaced where possible at corresponding weekly intervals from ages 1;3 to 1;10. Since the numbers 1 to 20 in the English context and in the Spanish context will be referred to in later tables and figures, it may be convenient just to think of them as suggesting approximately twenty consecutive weeks in the child's linguistic development between the ages of 1;3 and 1;10 (please refer to Tables 1 and 2 for more specific details). The

Table 1 English-context recordings used for quantitative analyses (gra = grandmother; mot = mother; Helen = caregiver; Jane = visitor) [Manuela's date of birth: 24-JUN-85]

	ENGLISH CONTEXT			
	Date	Age	Adult(s) present	Duration
1)	23-10-86	1;3.29	gra & mot	19 min
2)	30-10-86	1;4.6	gra & mot	12 min
3)	13-11-86	1;4.20	gra & mot	16 min
4)	20-11-86	1;4.27	gra	25 min
5)	27-11-86	1;5.3	gra	5 min
6)	8-1-87	1;6.15	gra	23 min
7)	15-1-87	1;6.22	Helen	10 min
8)	22-1-87	1;6.29	gra	12 min
9)	29-1-87	1;7.5	gra, mot & Jane	41 min
10)	5-2-87	1;7.12	gra & mot	47 min
11)	17-2-87	1;7.24	crèche	84 min
12)	19-2-87	1;7.26	gra & mot	44 min
13)	26-2-87	1;8.2	Helen (13min); gra (22min)	35 min
14)	5-3-87	1;8.9	gra & mot	24 min
15)	12-3-87	1;8.16	gra (22min); mot (19min)	41 min
16)	2-4-87	1;9.9	gra & mot	24 min
17)	9-4-87	1;9.16	gra	52 min
18)	16-4-87	1;9.23	gra & mot	32 min
19)	23-4-87	1;9.30	gra	28 min
20)	30-4-87	1;10.6	Helen (25min); gra & mot (26min)	51 min

TOTAL duration of ENGLISH recordings: 625 minutes or 10 hours and 25 minutes

Table 2 Spanish-context recordings used for quantitative analyses (fat = father; mot = mother; [mot] = mother behind the camera) [Manuela's date of birth: 24-JUN-85]

	SPANISH CONTEXT			
	Date	Age	Adult(s) present	Duration
1)	25-10-86	1;4.1	fat	22 min
2)	1-11-86	1;4.8	fat	20 min
3)	15-11-86	1;4.22	fat	17 min
4)	22-11-86	1;4.29	mot	22 min
5)	29-11-86	1;5.5	fat & [mot]	14 min
6)	12-12-86	1;5.18	fat & [mot]	17 min
7)	28-12-86	1;6.4	fat & [mot]	7 min
8)	11-1-87	1;6.18	fat & [mot]	26 min
9)	17-1-87	1;6.24	fat & [mot]	19 min
10)	24-1-87	1;7.0	fat	36 min
11)	1-2-87	1;7.8	fat	40 min
12)	8-2-87	1;7.15	fat	31 min
13)	15-2-87	1;7.22	fat & mot	25 min
14)	22-2-87	1;7.29	fat & joined later by mot	70 min
15)	28-2-87	1;8.4	fat	27 min
16)	8-3-87	1;8.12	fat & joined later by mot	17 min
17)	14-3-87	1;8.18	fat & mot	18 min
18)	4-4-87	1;9.11	fat	24 min
19)	12-4-87	1;9.19	mot (11min); fat (27min)	38 min
20)	25-4-87	1;10.1	fat	11 min
TOTAL duration of SPANISH recordings:			501 minutes or 8 hours and 21 minutes	

tables also show who was or were present with Manuela. Table 1 reveals that the child interacted in the recordings mainly with her monolingual English-speaking grandmother, who was present at 18 out of the 20 English-context sessions. Table 2 shows that her Spanish-speaking father was present at 19 out of the 20 Spanish-context sessions. Tables 1 and 2 show that in the recording sessions, the child's father speaks only Spanish with her and her grandmother only English, but the mother appears in both language contexts, addressing Manuela in either Spanish or English depending on whether a Spanish-speaking or an English-speaking interlocutor is also present. In 19 minutes of session 15 in Table 1, the mother is the sole English-speaking interlocutor. She is the only Spanish-speaking one in session 4 and in part of session 19 in Table 2.

Although the video recordings are my main source of data, the diary records (because they were kept daily) served as a source for the first appearance of lexical items and were invaluable in helping me to reconstruct the child's lexicon. Example 1

below shows four entries extracted from Manuela's lexicon. The first column notes the order of a word's appearance in the lexicon; the second column, the date of first recorded occurrence (I focus on production rather than on comprehension so a word is not listed in the lexicon unless the child actually produces it); then, the age of the child when she first uttered a particular word. The fourth column tells me where a word is recorded, whether in the diary (D) or on a video recording (V + the number of the videotape). Then there is a phonetic transcription of the child's utterance followed by the adult source word (A.S.W.) of the child's utterance as well as the language of the adult source word. The penultimate column is where I write down my observations such as the fact that in the first entry in Example 1, [bʊ] alternates with [bə] until 1;6.5 when Manuela has the adult pronunciation [bʊk]. The last column of my lexicon is the most important for this investigation. It tells me when an equivalent appears in the other language. For example, in the first entry, the Spanish equivalent for book, *libro*, appears at age 1;9.5 and is pronounced [libo] by Manuela.

Example 1 Entries from Manuela's lexicon (D = diary; V = video; A.S.W.= adult source word; < > = English translation)

ORDER	DATE	AGE	DATA BASE	CHILD UTT.	A.S.W.	LANG. of A.S.W.	VARIANT FORMS/ OBSERV.	EQUIV.
1	6-MAY-86	0;11.12	D	[bʊ]	book	ENG	alternates with [bə] 29-12-86 1;6.5 [bʊk]	29-3-87 **1;9.5** v.6 [libo] libro
12	13-SEP-86	1;2.20	D	[ka]	casa <house>	SPA	1-2-87 1;7.8/v.4 [kaʃa]	2-2-87 **1;7.9** D [aʊs] house
109	21-JAN-87	1;6.28	D	[pijɔ]	cepillo <brush>	SPA		3-2-87 **1;7.10** D [bʌʃ] brush
242	29-MAR-87	1;9.5	V.6	[uvelwo]	huevo <egg>	SPA		23-4-87 **1;9.30** D [ɪg] egg

To give an idea of the importance of the lexicon for the quantitative analyses, I am going to recount the basic procedure that I follow for each of Manuela's utterances in the transcripts of the video-recordings. To recapitulate, I am only interested in words with translation equivalents because the existence of such pairs would indicate that Manuela had a choice between two items. Therefore, when I am looking at a transcript, I need to refer back to the lexicon to ascertain whether each item produced by Manuela has an equivalent that was produced at an earlier point in time. For example, in the transcript of a Spanish-context session recorded at age 1;8.4 (session 15 in Table 2), Manuela produced [pijɔ] for cepillo. I would refer to the last column of entry 109 in Example 1. It appears that Manuela had the English equivalent, *brush*, at age 1;7.10. Therefore, she had a choice between *cepillo* and *brush* and made an appropriate choice by saying *cepillo* when addressed in Spanish. *Cepillo* would therefore be included in the analysis as an appropriate choice at age 1;8.4. If *brush* had not been produced yet, then *cepillo* would not have been counted in the analysis.

All of the child's spontaneous utterances are transcribed phonetically. By spontaneous utterances, I mean that they are neither repetitions of the same utterance by the child within her conversational turn nor are they imitations of her interlocutor's speech. I excluded from analysis incomprehensible utterances (that is, utterances which are not identifiable as either words nor as the child's standard form for a word). All spontaneous utterances are categorized to allow for an investigation of language choice. This involved determining what utterances are English (**ENG**), Spanish (**SPA**), ambiguous between English and Spanish (**E/S**) as in similar-sounding cognates like *baby/bebé*, and *train/tren*, or onomatopoeic sounds like [mau] for *meow*, or are utterances which do not have any recognizable adult English nor Spanish source word (coded as **?**) such as [m̩] meaning "animal" that Manuela used at around age one to refer to dogs, cats and anything on four legs. Only spontaneous utterances of categories **ENG** and **SPA** are used in my analyses. I then determined with the aid of the lexicon whether equivalents were available for these utterances.

RESULTS AND DISCUSSION

The results are presented in Figures 1 and 2 which show the number of English items with equivalents and the number of Spanish items with equivalents produced in the two contexts for each session. Figure 1 shows the total number of English and Spanish items with equivalents in English-context sessions, while Figure 2 shows the same but in Spanish-context sessions. As can be seen, the distribution of English and Spanish varies according to language context. There is a higher number of English utterances in the English context than in the Spanish context. Likewise, there is a much higher number of Spanish utterances in the Spanish context than in the English one. From about session 15 at age 1;8.16 in the English context, the percentage of English utterances is higher than Spanish ones - 62.5% in session 15; 56% in session 16; 91% in session 17; 94% in session 18; 86% in session 19; and 94% in session 20. From session 14 at age 1;7.29 in the Spanish context, there are consistently high percentages of Spanish utterances produced - 86% in session 14, 97% in session 15, 90% in session 16, 92% in session 17, 94% in session 18, 100% in session 19 and 96% in session 20. The low number of utterances with equivalents in sessions earlier than 15

Figure 1 Number of words with equivalents in English-context sessions

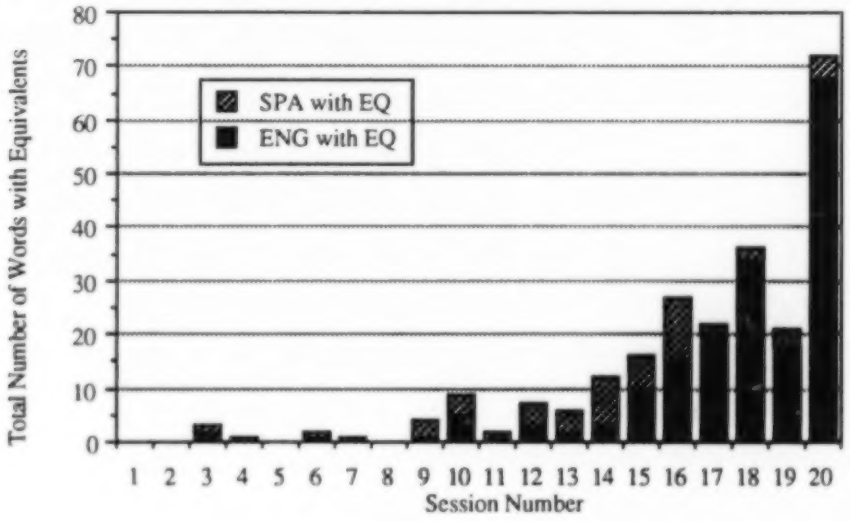
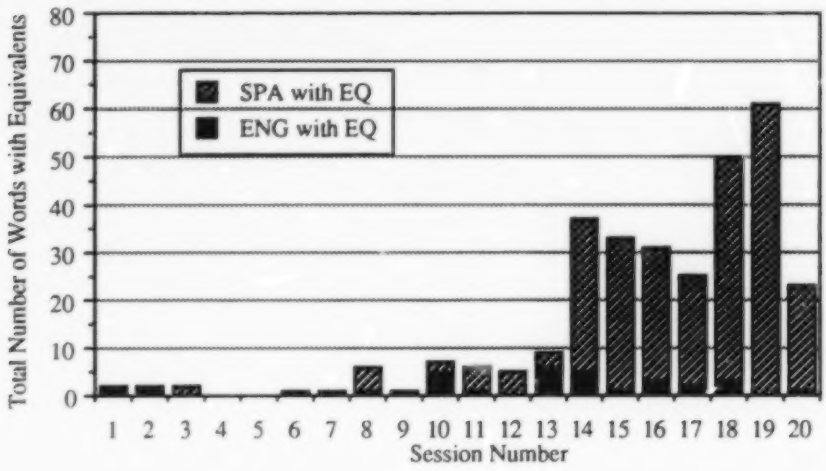


Figure 2 Number of words with equivalents in Spanish-context sessions



in the English context and earlier than 14 in the Spanish context makes it difficult to ascertain whether language choice is in operation or not. But in later sessions when there is an increase in the number of tokens produced in a session (in other words, when sufficient data to measure the differences could be collected), there appears to be a clear correlation between choice of language and language context.

Tables 3 and 4 give an idea of the type of data used in the analysis. Table 3 shows what was produced in an English context at age 1;9.16 (session 17 in Figure 1) and Table 4 shows lexical production in a Spanish context three days later at age 1;9.19 (session 19 in Figure 2). The percentages on these two tables are based upon tokens rather than on types. For example, *juice* (in Table 3) would be counted only once if I were counting types but is counted five times when I count tokens. Table 3 shows that Manuela produced much more English words than Spanish ones in an English context. There is one occurrence of the word *si* to five occurrences of its equivalent *yes*. Also, there is only one other Spanish item *más* (<more>) used in the whole session. She is using 11 English vocabulary items for which she has the Spanish equivalents as opposed to 2 Spanish ones and is also saying the English items more often (*yes* in 5 conversational turns; *juice* in 5 turns; and *duck* in two turns) in the session than the

Table 3 Example of production of words with equivalents in an **English context** at age 1;9.16 (session 17 in Figure 1)

ENG (91%)	SPA (9%)	<translation>
yes (5X)	si	<yes>
more	más	<more>
juice (5X)		
bunny		
orange		
come-on		
hand		
duck (2X)		
cat		
boats		
bucket		

Table 4 Example of production of words with equivalents in the **Spanish context** at age 1;9.19 (session 19 in Figure 2)

ENG (0%)	SPA (100%)	<translation>	SPA	<translation>
	más (3X)	<more>	carro	<car>
	piso (2X)	<floor>	cama (2X)	<bed>
	si (8X)	<yes>	cepillo (2X)	<brush>
	gato (5X)	<cat>	baño (3X)	<bath>
	niña (7X)	<girl>	galleta	<biscuit>
	pato (10X)	<duck>	taza	<cup>
	cayó	<[it] fell>	café	<coffee>
	osito (3X)	<teddy bear>	té (2X)	<tea>
	libro	<book>	queso	<cheese>
	zapato (3X)	<shoe>	naranja	<orange>
	niño	<boy>	cuchara	<spoon>
	barco	<boat>		

Spanish items which she only says in one conversational turn. In Table 4, Manuela produces only Spanish words in the Spanish context established by her interlocutors. In this particular session, she plays first with her mother, and then, with her father and does not say any English words for which she has Spanish equivalents with either parent. She produced 23 Spanish lexical items that had English equivalents with subsequent occurrences of 12 of them (*más* <more> (3X); *piso* <floor> (2X); *si* <yes> (8X); *gato* <cat> (5X), etc.), amounting to 61 Spanish tokens produced in total.

CONCLUSION

The results indicate that communicative competence is acquired even earlier than previously suggested (cf. Lanza, 1990). My bilingual subject uses her developing languages in contextually sensitive ways before age 1;10. Sociolinguistic theory studying language choice in adults have provided evidence that interlocutors affect language choice (as in accommodation theory by Giles & Smith, 1979). When an interlocutor speaks more than one language (as Manuela's mother does when she speaks English in English-context sessions and Spanish in Spanish-context sessions), language choice becomes based primarily on the language spoken by the interlocutor. In this study I have concentrated on Manuela's production of translation equivalents in order to study her language-choice patterns where she does have a choice. I found clear differentiation as early as age 1;7.29 in the Spanish context. I am unable to claim anything conclusively for earlier sessions because the number of words produced by Manuela in these sessions is too low to be of any significance. Nevertheless, this bilingual study has provided a means of investigating communicative competence from the first words and shows that communicative competence is acquired very early as a consequence of language socialization.

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